

**PCT**

From the INTERNATIONAL BUREAU

## NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

DANIELS, Jeffrey, Nicholas  
Page White & Farrer  
54 Doughty Street  
London WC1N 2LS  
ROYAUME-UNI

**Date of mailing** (day/month/year)  
17 April 2000 (17.04.00)

**Applicant's or agent's file reference**  
88369/JND/CH

**International application No.**  
PCT/GB98/03154

### IMPORTANT NOTIFICATION

**International filing date** (day/month/year)  
21 October 1998 (21.10.98)

1. The following indications appeared on record concerning:

☒ the applicant      ☐ the inventor      ☐ the agent      ☐ the common representative

**Name and Address**

CAMBRIDGE DISPLAY TECHNOLOGY LTD.  
181a Huntingdon Road  
Cambridge CB3 0DJ  
United Kingdom

**State of Nationality**  
GB

**State of Residence**  
GB

**Telephone No.**

**Facsimile No.**

**Teleprinter No.**

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person      ☐ the name      ☒ the address      ☐ the nationality      ☐ the residence

**Name and Address**

CAMBRIDGE DISPLAY TECHNOLOGY LTD.  
Greenwich House  
Madingley Rise  
Madingley Road  
Cambridge CB3 0HJ  
United Kingdom

**State of Nationality**  
GB

**State of Residence**  
GB

**Telephone No.**

**Facsimile No.**

**Teleprinter No.**

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office      ☐ the designated Offices concerned  
☐ the International Searching Authority      ☒ the elected Offices concerned  
☐ the International Preliminary Examining Authority      ☐ other:

**The International Bureau of WIPO**  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

**Authorized officer**

G. Bähr

Telephone No.: (41-22) 338.83.38

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

United States Patent and Trademark  
Office  
(Box PCT)  
Crystal Plaza 2  
Washington, DC 20231  
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year)

12 July 1999 (12.07.99)

International application No.

PCT/GB98/03154

Applicant's or agent's file reference

88369/JND/CH

International filing date (day/month/year)

21 October 1998 (21.10.98)

Priority date (day/month/year)

21 October 1997 (21.10.97)

Applicant

HOLMES, Andrew, Bruce et al

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

20 May 1999 (20.05.99)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was



was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

S. Mafla

Telephone No.: (41-22) 338.83.38

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>88369/JND/CH</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 98/ 03154</b>	International filing date (day/month/year) <b>21/10/1998</b>	(Earliest) Priority Date (day/month/year) <b>21/10/1997</b>
Applicant <b>CAMBRIDGE DISPLAY TECHNOLOGY LTD et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ **Certain claims were found unsearchable** (see Box I).
2. ☐ **Unity of invention is lacking** (see Box II).
3. ☐ The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing

- ☐ filed with the international application.
- ☐ furnished by the applicant separately from the international application,
- ☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ Transcribed by this Authority

4. With regard to the **title**, ☐ the text is approved as submitted by the applicant
- ☒ the text has been established by this Authority to read as follows:

**POLYMERIC MATERIALS FOR ELECTROLUMINESCENT DEVICES**

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is:

Figure No. ---

- ☐ as suggested by the applicant.
- ☐ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.

☐ None of the figures.

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C09K11/06 H01B1/12 C08G61/10 H05B33/14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C09K H01B C08G H05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 745 658 A (STICHTING SCHEIKUNDIG ONDERZOE ;STICHTING TECH WETENSCHAPP (NL); U) 4 December 1996 see page 3, line 35 - line 45 ---	1,2,6,8, 10,17-29
X	US 5 558 904 A (HSIEH BING R ET AL) 24 September 1996 cited in the application see example 6 ---	1,2, 8-11, 14-29
X	WEI P K ET AL: "SURFACE MODIFICATION AND PATTERNING OF CONJUGATED POLYMERS WITH NEAR-FIELD OPTICAL MICROSCOPY" ADVANCED MATERIALS, vol. 8, no. 7, July 1996, pages 573-576, XP000598874 Scheme 2 --- -/--	1,2,8, 14-29

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

18 December 1998

Date of mailing of the international search report

12/01/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Shade, M

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>ANTONIADIS H ET AL: "LIGHT-EMITTING DIODES BASED ON POLY(2,3-DIPHENYL-1,4-PHENYLENE VINYLENE)" POLYMERS FOR ADVANCED TECHNOLOGIES, vol. 8, no. 7, July 1997, pages 392-398, XP000695518 cited in the application see the whole document</p>	1,2, 8-11, 14-29
X	<p>WAN W C ET AL: "HALOGEN PRECURSOR ROUTE TO POLY 2,3-DIPHENYL-P-PHENYLENE)VINYLENE (DP-PPV): SYNTHESIS, PHOTOLUMINESCENCE, ELECTROLUMINESCENCE, AND PHOTOCONDUCTIVITY" MACROMOLECULES, vol. 30, no. 21, 20 October 1997, pages 6567-6574, XP000720388 see the whole document</p>	1,2,8, 11,14-29
A	<p>GETTINGER ET AL: "A photoluminescence study of poly(phenylene vinylene) derivatives: The effect of intrinsic persistence length" JOURNAL OF CHEMICAL PHYSICS, vol. 101, no. 2, 15 July 1994, pages 1673-1678, XP002088538 see the whole document</p>	1-29
A	<p>WOO: "Optical spectra and excitations in phenylene vinylene oligomers" SYNTHETIC METALS, vol. 59, 1993, pages 13-28, XP002088539 see the whole document</p>	1-29
A	<p>US 5 514 878 A (HOLMES ANDREW B ET AL) 7 May 1996 see the whole document</p>	1-29

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

5/GB 98/03154

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0745658	A	04-12-1996	NONE	
US 5558904	A	24-09-1996	NONE	
US 5514878	A	07-05-1996	AU 6729194 A	03-01-1995
			EP 0704094 A	03-04-1996
			WO 9429883 A	22-12-1994

PCT



REC'D 15 FEB 2000

WIPO

PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 88369/JND/CH	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB98/03154	International filing date (day/month/year) 21/10/1998	Priority date (day/month/year) 21/10/1997
International Patent Classification (IPC) or national classification and IPC C09K11/06		
Applicant CAMBRIDGE DISPLAY TECHNOLOGY LTD et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"><li>I <input checked="" type="checkbox"/> Basis of the report</li><li>II <input type="checkbox"/> Priority</li><li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li><li>IV <input type="checkbox"/> Lack of unity of invention</li><li>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li><li>VI <input type="checkbox"/> Certain documents cited</li><li>VII <input type="checkbox"/> Certain defects in the international application</li><li>VIII <input checked="" type="checkbox"/> Certain observations on the international application</li></ul>		
Date of submission of the demand 20/05/1999	Date of completion of this report 11.02.00	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Komenda, C Telephone No. +49 89 2399 8308 	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB98/03154

**I. Basis of the report**

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

**Description, pages:**

1-18 as originally filed

**Claims, No.:**

1-29 as originally filed

**Drawings, sheets:**

1/6-6/6 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB98/03154

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes:	Claims	13, 23
	No:	Claims	1-12, 14-22, 24-29
Inventive step (IS)	Yes:	Claims	
	No:	Claims	IS no: 1-29
Industrial applicability (IA)	Yes:	Claims	1-29
	No:	Claims	

**2. Citations and explanations**

**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**Concerning paragraph V:**

1. Analysis of the cited documents:

D1: EP-A-0 745 658:

This document discloses on p. 3, formula 5 a compound, which falls within the scope of the claims of the present application. Experimental Example 5 shows the preparation of a light emitting electrode by spin coating of a toluene-solution of the compounds onto an ITO-coated glass plate. Thus, the subject-matter of claims 1-3, 5, 6, 8, 10, 17-22, 24-29 is anticipated by D1.

D2: US-A-5 558 904:

D2 discloses in Example 6 a process for the preparation of poly(2,3-diphenyl-p-phenylene-vinylene), which is identical to the process of the application. It is used for electrical devices / diodes. The polymer is applied by spin-coating techniques. Thus, the subject-matter of claims 1, 2, 8-12, 14-22, 24-29 is anticipated by D2.

D3: WEI P K ET AL: 'SURFACE MODIFICATION AND PATTERNING OF CONJUGATED POLYMERS WITH NEAR-FIELD OPTICAL MICROSCOPY' ADVANCED MATERIALS, vol. 8, no. 7, July 1996, pages 573-576, XP000598874:

This document concerns photo-oxidation study on conjugated polymers, exemplified by poly(3,4-diphenyl-2,5-thienylene vinylene). The preparation process is identical with the process of the application. The polymers are used for electrical devices / light emitting diodes. Thus, the subject-matter of claims 1, 2, 8, 14-21, 24-29 is anticipated by D3.

D4: ANTONIADIS H ET AL: 'LIGHT-EMITTING DIODES BASED ON POLY(2,3-DIPHENYL-1,4-PHENYLENE VINYLENE)' POLYMERS FOR ADVANCED TECHNOLOGIES, vol. 8, no. 7, July 1997, pages 392-398, XP000695518:

Light emitting diodes based on poly(2,3-diphenyl-1,4-phenylene vinylene) are disclosed. The polymers are prepared according to the process as claimed in the present application and are spin-coated on an ITO-coated substrate. Therefore, the subject-matter of claims 1, 2, 8-12, 14-22, 24-29 is anticipated by D4.

D5: WAN W C ET AL: 'HALOGEN PRECURSOR ROUTE TO POLY 2,3-DIPHENYL-P-PHENYLENE)VINYLENE (DP-PPV): SYNTHESIS, PHOTOLUMINESCENCE, ELECTROLUMINESCENCE, AND PHOTOCONDUCTIVITY' MACROMOLECULES, vol. 30, no. 21, 20 October 1997, pages 6567-6574, XP000720388:

This document discloses a poly(2,3-diphenyl-1,4-phenylene vinylene), which is prepared as claimed in the present application and used as electrical device /light emitting diode. Therefore, the subject-matter of claims 1, 2, 8-12, 14-21, 25-29 is anticipated by D5.

D6: GETTINGER ET AL: 'A photoluminescence study of poly(phenylene vinylene) derivatives: The effect of intrinsic persistence length' JOURNAL OF CHEMICAL PHYSICS, vol. 101, no. 2, 15 July 1994, pages 1673-1678, XP002088538:

Photoluminescence studies of poly(phenylene vinylene). The compounds abbreviated as MEH-PPV and BEH-PPV, although not substituted in the 2,3-positions but in the 2,5-positions, anticipate the subject-matter of claims 1, 2, 4-8, 10, 17-19, 26-29.

D7: WOO: 'Optical spectra and excitations in phenylene vinylene oligomers' SYNTHETIC METALS, vol. 59, 1993, pages 13-28, XP002088539 (A):

Optical studies on **unsubstituted** poly(phenylene vinylene).

D8: US-A-5 514 878 (A):

Conjugated polymers for electroluminescent devices, wherein the **vinylene moieties are substituted** with electronegative substituents. The preparation method is analogous to the method claimed in the present application.

Since the subject-matter of claims 1-12, 14-22 and 24-29 is anticipated by at least one of documents D1 to D6 it does not fulfil the requirements of Art. 33 PCT concerning novelty and inventive step.

2. The subject-matter of claims 13 and 23 is regarded as being novel, but as not involving an inventive step: For a skilled person it was a mere routine job to use

the substituents known from D1 (crown-ethers) and D5 (ethylhexyloxy) on a phenylene vinylene component, that is linked in 1,4-position. The use of a different solvent for spin-coating (chloroform instead of tetrahydrofuran or toluene) is merely a conventional variation.

Therefore, the subject-matter of claims 13 and 23 does not involve an inventive step.

3. The subject-matter of claims 1 to 29 is industrially applicable for the preparation of electroluminescent devices.

**Concerning paragraph VIII:**

The definition of the substituents in claim 1 is unclear concerning a) their position and b) their chemical structure. Their position and structure are merely defined as a result to be achieved, but not in terms of a technical feature.

=> s (poly 1,4-arylene vinylene or poly 1,4-phenylene vinylene or poly 1,4-phenyl vinylene)

139623 POLY  
2933363 1  
2882478 4  
12998 ARYLENE  
3969 VINYLENE  
0 POLY 1,4-ARYLENE VINYLENE  
(POLY(W)1(W)4(W)ARYLENE(W)VINYLENE)

139623 POLY  
2933363 1  
2882478 4  
40189 PHENYLENE  
3969 VINYLENE  
8 POLY 1,4-PHENYLENE VINYLENE  
(POLY(W)1(W)4(W)PHENYLENE(W)VINYLENE)

139623 POLY  
2933363 1  
2882478 4  
182722 PHENYL  
3969 VINYLENE  
0 POLY 1,4-PHENYL VINYLENE  
(POLY(W)1(W)4(W)PHENYL(W)VINYLENE)

L1 8 (POLY 1,4-ARYLENE VINYLENE OR POLY 1,4-PHENYLENE VINYLENE OR  
POLY 1,4-PHENYL VINYLENE)

=> s l1 and photoluminescen? and electroluminescen?

2074 PHOTOLUMINESCEN?  
7747 ELECTROLUMINESCEN?

L2 3 L1 AND PHOTOLUMINESCEN? AND ELECTROLUMINESCEN?

=> s l2 and blue

138337 BLUE

L3 2 L2 AND BLUE

=> d l3 1-2

L3 ANSWER 1 OF 2 USPATFULL  
AN 1999:53539 USPATFULL  
TI Polyfluorenes as materials for **photoluminescence** and  
**electroluminescence**  
IN Pei, Qibing, United States  
Yu, Gang, United States  
Yang, Yang, all of Santa Barbara, CA, United States  
PA Uniax Corporation, Santa Barbara, CA, United States (U.S. corporation)  
PI US 5900327 19990504 N  
AI US 1997-968852 19971105 (8)  
RLI Continuation of Ser. No. US 1996-610664, filed on 4 Mar 1996, now  
abandoned  
DT Utility  
FS Granted  
LN.CNT 882  
INCL INCLM: 428/690.000  
INCLS: 428/691.000; 428/917.000; 313/504.000; 528/422.000; 528/425.000  
NCL NCLM: 428/690.000  
NCLS: 313/504.000; 428/691.000; 428/917.000; 528/422.000; 528/425.000  
IC [6]  
ICM: N05B033-00  
EXF 428/690; 428/691; 428/917; 313/504; 528/422; 528/425

L3 ANSWER 2 OF 2 USPATFULL  
 AN 1998:31298 USPATFULL  
 TI **Blue** light-emitting polymer and light-emitting diode adopting  
 the same  
 IN Hwang, Do-hoon, Department of Chemistry, Korea Advanced Institute of  
 Science and Technology, 371-1 Kusung-dong, Yusung-gu, Daejeon-city,  
 Chungcheongnam-do, Korea, Republic of  
 Shim, Hong-ku, 132-1302 Hanbit Apt., Eoeun-dong, Yusung-gu,  
 Daejeon-city, Chungcheongnam-do, Korea, Republic of  
 Sakong, Dong-sik, 115-802 Shibeommaeul Hanshin Apt., Seohyun-dong,  
 Bundang-ku, Sungnam-city, Kyungki-do, Korea, Republic of  
 PI US 5731599 19980324 W  
 AI US 1995-562025 19951122 (8)  
 PRAI KR 1995-23528 19950731  
 DT Utility  
 FS Granted  
 LN.CNT 402  
 INCL INCLM: 257/040.000  
 INCLS: 257/103.000  
 NCL NCLM: 257/040.000  
 NCLS: 257/103.000  
 IC [6]  
 ICM: H01L035-24  
 ICS: H01L051-00  
 EXF 257/103; 257/40  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=&gt; d 11 1-8

L1 ANSWER 1 OF 8 USPATFULL  
 AN 2000:98138 USPATFULL  
 TI Polymeric thin-film reversible electrochemical charge storage devices  
 IN Grunwald, Yaron, San Jose, CA, United States  
 PA Adven Polymers, Inc., San Jose, CA, United States (U.S. corporation)  
 PI US 6096453 20000801  
 AI US 1998-100203 19980619 (9)  
 DT Utility  
 FS Granted  
 LN.CNT 1754  
 INCL INCLM: 429/212.000  
 INCLS: 429/213.000  
 NCL NCLM: 429/212.000  
 NCLS: 429/213.000  
 IC [7]  
 ICM: H01M004-60  
 EXF 429/212; 429/213; 429/303  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 2 OF 8 USPATFULL  
 AN 1999:110767 USPATFULL  
 TI Encapsulated organic light emitting device  
 IN Haskal, Eliav, Zurich, Switzerland  
 Karg, Siegfried, Solnhofen, Germany, Federal Republic of  
 Salem, Jesse Richard, Cupertino, CA, United States  
 Scott, John Campbell, Los Gatos, CA, United States  
 PA International Business Machines Corporation, Armonk, NY, United States  
 (U.S. corporation)  
 PI US 5952778 19990914

09/669,099

AI US 1997-820219 19970318 (8)

DT Utility

FS Granted

LN.CNT 268

INCL INCLM: 313/504.000

INCLS: 313/506.000; 313/507.000; 313/512.000

NCL NCLM: 313/504.000

NCLS: 313/506.000; 313/507.000; 313/512.000

IC [6]

ICM: H01J001-62

ICS: H01J063-04

EXF 313/503-504; 313/505; 313/506-507; 313/509-510; 313/512

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 3 OF 8 USPATFULL

AN 1999:53539 USPATFULL

TI Polyfluorenes as materials for photoluminescence and electroluminescence

IN Pei, Qibing, United States

Yu, Gang, United States

Yang, Yang, all of Santa Barbara, CA, United States

PA Uniax Corporation, Santa Barbara, CA, United States (U.S. corporation)

PI US 5900327 19990504

AI US 1997-968852 19971105 (8)

RLI Continuation of Ser. No. US 1996-610664, filed on 4 Mar 1996, now abandoned

DT Utility

FS Granted

LN.CNT 882

INCL INCLM: 428/690.000

INCLS: 428/691.000; 428/917.000; 313/504.000; 528/422.000; 528/425.000

NCL NCLM: 428/690.000

NCLS: 313/504.000; 428/691.000; 428/917.000; 528/422.000; 528/425.000

IC [6]

ICM: N05B033-00

EXF 428/690; 428/691; 428/917; 313/504; 528/422; 528/425

L1 ANSWER 4 OF 8 USPATFULL

AN 1998:69523 USPATFULL

TI Light emitting device

IN Gordon, II, Joseph Grover, San Jose, CA, United States

Karg, Sigfried Friedrich, Solnhofen, Germany, Federal Republic of

Kaufman, James Harvey, San Jose, CA, United States

Kreyschmidt, Martin, Worms-Pfeddersheim, Germany, Federal Republic of

Miller, Robert Dennis, San Jose, CA, United States

Scott, John Campbell, Los Gatos, CA, United States

PA International Business Machines Corporation, Armonk, NY, United States (U.S. corporation)

PI US 5767624 19980616

AI US 1996-670480 19960626 (8)

DT Utility

FS Granted

LN.CNT 244

INCL INCLM: 313/509.000

INCLS: 313/506.000

NCL NCLM: 313/509.000

NCLS: 313/506.000

IC [6]

ICM: H01J001-62

EXF 313/358; 313/509; 313/505; 313/506; 313/507; 313/508

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 5 OF 8 USPATFULL  
 AN 1998:31298 USPATFULL  
 TI Blue light-emitting polymer and light-emitting diode adopting the same  
 IN Hwang, Do-hoon, Department of Chemistry, Korea Advanced Institute of  
 Science and Technology, 371-1 Kusung-dong, Yusung-gu, Daejeon-city,  
 Chungcheongnam-do, Korea, Republic of  
 Shim, Hong-ku, 132-1302 Hanbit Apt., Eoeun-dong, Yusung-gu,  
 Daejeon-city, Chungcheongnam-do, Korea, Republic of  
 Sakong, Dong-sik, 115-802 Shibeommaeul Hanshin Apt., Seohyun-dong,  
 Bundang-ku, Sungnam-city, Kyungki-do, Korea, Republic of  
 PI US 5731599 19980324  
 AI US 1995-562025 19951122 (8)  
 PRAI KR 1995-23528 19950731  
 DT Utility  
 FS Granted  
 LN.CNT 402  
 INCL INCLM: 257/040.000  
 INCLS: 257/103.000  
 NCL NCLM: 257/040.000  
 NCLS: 257/103.000  
 IC [6]  
 ICM: H01L035-24  
 ICS: H01L051-00  
 EXF 257/103; 257/40  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 6 OF 8 USPATFULL  
 AN 97:96685 USPATFULL  
 TI Fuel cell incorporating novel ion-conducting membrane  
 IN Ehrenberg, Scott G., Fishkill, NY, United States  
 Serpico, Joseph M., Troy, NY, United States  
 Wnek, Gary E., Latham, NY, United States  
 Rider, Jeffrey N., Troy, NY, United States  
 PA Dais Corporation, Palm Harbor, FL, United States (U.S. corporation)  
 PI US 5679482 19971021  
 AI US 1995-542474 19951006 (8)  
 RLI Continuation-in-part of Ser. No. US 1994-247285, filed on 23 May 1994,  
 now patented, Pat. No. US 5468574  
 DT Utility  
 FS Granted  
 LN.CNT 1182  
 INCL INCLM: 429/249.000  
 INCLS: 427/115.000; 427/385.500; 204/296.000  
 NCL NCLM: 429/249.000  
 NCLS: 204/296.000; 427/115.000; 427/385.500  
 IC [6]  
 ICM: H01M002-16  
 ICS: B05D005-12; B05D003-02; C25B013-08  
 EXF 427/115; 427/385.5; 204/296; 204/242; 429/249  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 7 OF 8 USPATFULL  
 AN 93:68280 USPATFULL  
 TI Conductive polymer dye laser and diode and method of use  
 IN Moses, Daniel, Santa Barbara, CA, United States  
 PA The Regents of the University of California, Oakland, CA, United States  
 (U.S. corporation)  
 PI US 5237582 19930817  
 AI US 1992-904731 19920626 (7)



09/669,099

DT Utility  
FS Granted  
LN.CNT 895

INCL INCLM: 372/053.000  
INCLS: 372/054.000; 252/301.170

NCL NCLM: 372/053.000  
NCLS: 252/301.170; 372/054.000

IC [5]  
ICM: H01S003-20

EXF 372/53; 372/54; 252/301.17

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 8 OF 8 USPATFULL

AN 93:10288 USPATFULL

TI Conductive polymers formed from conjugated backbone polymers doped with non-oxidizing protonic acids

IN Han, Chien-Chung, Madison, NJ, United States  
Elsenbaumer, Ronald L., Morris Township, Morris County, NJ, United States

PA Allied-Signal Inc, Morristown, NJ, United States (U.S. corporation)

PI US 5185100 19930209

AI US 1990-501066 19900329 (7)

DT Utility

FS Granted

LN.CNT 1050

INCL INCLM: 252/500.000  
INCLS: 252/518.000; 528/422.000

NCL NCLM: 252/500.000  
NCLS: 528/422.000

IC [5]  
ICM: H01B001-20

EXF 252/500; 252/518; 528/422; 524/80; 524/401

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d 12 1-3

L2 ANSWER 1 OF 3 USPATFULL

AN 1999:53539 USPATFULL

TI Polyfluorenes as materials for **photoluminescence** and **electroluminescence**

IN Pei, Qibing, United States  
Yu, Gang, United States

Yang, Yang, all of Santa Barbara, CA, United States

PA Uniax Corporation, Santa Barbara, CA, United States (U.S. corporation)

PI US 5900327 19990504

AI US 1997-968852 19971105 (8)

RLI Continuation of Ser. No. US 1996-610664, filed on 4 Mar 1996, now abandoned

DT Utility

FS Granted

LN.CNT 882

INCL INCLM: 428/690.000  
INCLS: 428/691.000; 428/917.000; 313/504.000; 528/422.000; 528/425.000

NCL NCLM: 428/690.000  
NCLS: 313/504.000; 428/691.000; 428/917.000; 528/422.000; 528/425.000

IC [6]  
ICM: N05B033-00

EXF 428/690; 428/691; 428/917; 313/504; 528/422; 528/425

L2 ANSWER 2 OF 3 USPATFULL  
AN 1998:31298 USPATFULL  
TI Blue light-emitting polymer and light-emitting diode adopting the same  
IN Hwang, Do-hoon, Department of Chemistry, Korea Advanced Institute of  
Science and Technology, 371-1 Kusung-dong, Yusung-gu, Daejeon-city,  
Chungcheongnam-do, Korea, Republic of  
Shim, Hong-ku, 132-1302 Hanbit Apt., Eoeun-dong, Yusung-gu,  
Daejeon-city, Chungcheongnam-do, Korea, Republic of  
Sakong, Dong-sik, 115-802 Shibeommaeul Hanshin Apt., Seohyun-dong,  
Bundang-ku, Sungnam-city, Kyungki-do, Korea, Republic of  
PI US 5731599 19980324  
AI US 1995-562025 19951122 (8)  
PRAI KR 1995-23528 19950731  
DT Utility  
FS Granted  
LN.CNT 402  
INCL INCLM: 257/040.000  
INCLS: 257/103.000  
NCL NCLM: 257/040.000  
NCLS: 257/103.000  
IC [6]  
ICM: H01L035-24  
ICS: H01L051-00  
EXF 257/103; 257/40  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 3 OF 3 USPATFULL  
AN 93:68280 USPATFULL  
TI Conductive polymer dye laser and diode and method of use  
IN Moses, Daniel, Santa Barbara, CA, United States  
PA The Regents of the University of California, Oakland, CA, United States  
(U.S. corporation)  
PI US 5237582 19930817  
AI US 1992-904731 19920626 (7)  
DT Utility  
FS Granted  
LN.CNT 895  
INCL INCLM: 372/053.000  
INCLS: 372/054.000; 252/301.170  
NCL NCLM: 372/053.000  
NCLS: 252/301.170; 372/054.000  
IC [5]  
ICM: H01S003-20  
EXF 372/53; 372/54; 252/301.17  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=&gt;